AMENDMENT TO THE CLAIMS

Please amend the claims as indicated hereafter.

The following is a copy of Applicant's claims that identifies language being added with underlining (“___”) and language being deleted with strikethrough (“—”) or placed in double brackets (“[[ ]]”), as applicable:

1. (Currently amended) A system for fast processing real-time media stream data package, comprising: at least one computing device, an IP data package fast filter module, an UDP fast sending module, a policy ARP table process module based on local UDP port and a RTP/RTCP fast receiving process function registered on the basis of UDP port in a RTP/RTCP application layer, each module being executable in the at least one computing device; wherein

said policy ARP table process module based on local UDP port is connected and communicated with said IP data package fast filter module and said UDP fast sending module respectively, and is used for constructing an ARP table with a port mapping value being suffix according to distribution of RTP/RTCP protocol port resource and features of the RTP/RTCP protocol port;

said IP data package fast filter module is used for installing a fast receiving hook function in a data link layer receiving function, in which said hook function is used to analyze content of an Ethernet data package; the RTP/RTCP application layer registers the RTP/RTCP fast receiving process function corresponding to the UDP port in the hook function;

said UDP fast sending module is used for directly calling a sending function provided by the UDP fast sending module when the RTP/RTCP application layer sending the real-time media stream data package, and after the process of the UDP fast sending module, calling a corresponding net interface sending function to send out the data; and

said IP data package fast filter module is used for receiving the real-time media stream data package from a net interface receiving function, and transporting it to the RTP/RTCP fast receiving process function, thus directly transmitting it to a task buffer of the RTP/RTCP application layer.

2. (Original) The system according to claim 1, with characterized in further comprising a TCP/IP protocol stack module, by which SOCKET API sends the data package in the situation that said UDP fast sending module can not accomplish the data package sending.

3. (Previously presented) The system according to claim 1, with characterized in the information in the ARP table mainly including: data package destination IP address, next hop MAC address and last refurbishing time of the table.

4. (Original) The system according to claim 3, with characterized in the process for said hook function analyzing the content of Ethernet data package including: analyzing whether the data package is an IP data package, if yes, further analyzing whether it is a UDP data package, if yes, further analyzing whether it is a registered data package within the scope of UDP port, if yes, calling the corresponding RTP/RTCP fast receiving process function registered on the basis of UDP port to send the real-time media stream data package to the task buffer of the RTP/RTCP application layer directly.

5. (Original) The system according to claim 3, with characterized in the process for said hook function analyzing the content of Ethernet data package including: analyzing whether the data package is an IP data package, if not, the hook function entity further analyzing whether it is a gratuitous ARP package, if yes, initiating an ARP table refurbishing system based on local UDP port policy to invalidate the policy ARP table.

6. (Currently amended) A method for fast processing real-time media stream data package, comprising the following steps of:

a) setting, in at least one computing device, a policy ARP table process module based on local UDP port, and constructing an ARP table with a port mapping value being suffix according to distribution of equipment RTP/RTCP protocol port resource and features of RTP/RTCP protocol port;

b) calling, in the at least one computing device, a UDP fast sending module to send a RTP/RTCP data package through a RTP/RTCP application layer, and obtaining next hop MAC address by using relevant interface function of TCP/IP protocol stack according to destination IP address of the RTP/RTCP data package;

c) if obtaining the next hop MAC address successfully, refurbishing, in the at least one computing device, the next hop MAC address in the ARP table and sending the RTP/RTCP data package directly, thereafter, if the destination IP address transmitted on the UDP port does not change and the port ARP table has not reached aging time, then without exception, using the next hop MAC address in the ARP table directly to fill the destination MAC address of Ethernet data package, and fast sending the RTP/RTCP data package; and

d) if failing in obtaining the next hop MAC address, sending, in the at least one computing device, the RTP/RTCP data package through TCP/IP UDP SOCKET API, so that the TCP/IP protocol stack obtains the next hop MAC address and refurbishes the protocol stack ARP table, when sending the next data package of the port, it is able to obtain the next hop MAC address successfully and refurbish the next hop MAC address in the policy ARP table based on local UDP port.

7. (Original) The method according to claim 6, with characterized in further comprising a step of fast sending the RTP/RTCP data package, including the following steps of:

a1) initializing the whole local Ethernet data frame structure and filling relevant fields according to situation of the RTP/RTCP application layer;

a2) preparing parameters such as protocol layer data index, data length, original IP address, destination IP address, original UDP port number and destination UDP port number when the RTP/RTCP application layer sending real-time media stream data package, and calling a RTP/RTCP sending function provided by the UDP fast sending module;

a3) the UDP fast sending module obtaining the next hop MAC address from the ARP table according to the original UDP port number and destination IP address; if failing in obtaining, sending the RTP/RTCP data package through the TCP/IP protocol stack module;

a4) if obtaining successfully, using the initialized Ethernet data frame structure and filling corresponding fields, and calculating and filling check fields of IP, UDP if necessary;

a5) calling a net interface sending function to send the data package.

8. (Original) The method according to claim 6, with characterized in further including a step of fast receiving the RTP/RTCP data package, includes the following steps of:

b1) maintaining a protocol layer callback function register according to the distribution of local UDP port resource, and registering a RTP/RTCP fast receiving process function to receive and process the UDP data package corresponding to a destination port number, the RTP/RTCP fast receiving process function writing the RTP/RTCP data package into buffer of the RTP/RTCP application layer;

b2) registering an Ethernet data package fast receiving process hook function in a net interface receiving function, in which the hook function entity is the IP data package fast filter module, used for analyzing whether the Ethernet data package is the UDP/IP data package of the net interface and performing filter process;

b3) calling the callback function RTP/RTCP fast receiving process function registered by the RTP/RTCP application layer corresponding to the UDP destination port number according to the destination port number of the UDP data package and RTP/RTCP application layer callback function register, and this callback function accomplishing processing the UDP data package;

b4) if the IP data package fast filter module has successfully passed the process of callback function RTP/RTCP fast receiving function registered by the RTP/RTCP application layer, then returning a sign of having been processed; and

b5) the net interface receiving function judging whether to continue sending it to the TCP/IP protocol stack module for process according to the sign of whether having been processed returned by the Ethernet data package fast receiving process hook function.

9. (Original) The method according to claim 8, with characterized in analyzing whether it is gratuitous ARP package if having not been processed after step b4; when receiving the gratuitous ARP package on the net interface receiving function, invalidating the MAC address in the ARP table, so as to actively obtain the next hop MAC address from the TCP/IP protocol stack and refurbish the ARP table during the later RTP/RTCP data package sending.

10. (Previously presented) The method according to claim 6, with characterized in defining a refurbishing time interval in step d, so as to refurbish the policy ARP table based on local UDP port according to timing.

11. (Currently amended) A method for fast processing real-time media stream data package, employed in ~~a~~ at least one network ~~system~~ device comprising media gateway, IAD and IP multimedia terminal, comprising the following steps of:

in the direction of receiving, using an IP data package fast filter module in the at least one network device to replace a TCP/IP protocol stack data receiving process function set and SOCKET receiving process; and

in the direction of sending, using a UDP fast sending module in the at least one network device to replace a TCP/IP protocol stack data sending process function set and SOCKET sending process.

12. (Original) The method according to claim 11, with characterized in further including setting a TCP/IP protocol stack module, through which, SOCKET API sending the data package in the situation that said UDP fast sending module can not accomplish sending the data package.

13. (Previously presented) The system according to claim 2, with characterized in the information in the ARP table mainly including: data package destination IP address, next hop MAC address and last refurbishing time of the table.

14. (Previously presented) The method according to claim 7, with characterized in defining a refurbishing time interval in step d, so as to refurbish the policy ARP table based on local UDP port according to timing.

15. (Previously presented) The method according to claim 8, with characterized in defining a refurbishing time interval in step d, so as to refurbish the policy ARP table based on local UDP port according to timing.

16. (Previously presented) The method according to claim 9, with characterized in defining a refurbishing time interval in step d, so as to refurbish the policy ARP table based on local UDP port according to timing.